

WHAT IS CLAIMED IS:

1 ⁹⁴⁶ 1. An optical element comprising
2 ^{A4} a base member; and
3 a resin layer formed on the surface of the base member and
4 comprising a cured product of a photosensitive resin composition,
5 wherein said resin layer has a refractive index of 1.55 or more.

1 2. An optical element comprising
2 a base member; and
3 a resin layer formed on the surface of the base member and
4 comprising a cured product of a photosensitive resin composition,
5 wherein said resin layer has a visible-light inner transmittance of
6 95% or more in a 100 μ m thick area.

1 3. An optical element comprising
2 a base member; and
3 a resin layer formed on the surface of the base member and
4 comprising a cured product of a photosensitive resin composition,
5 wherein said resin layer has a rate of hygroscopic dimensional
6 change of 0.4% or less.

1 4. An optical element comprising
2 a base member; and
3 a resin layer formed on the surface of the base member and
4 comprising a cured product of a photosensitive resin composition,
5 wherein said resin layer has a durometer hardness of HDD 70 or
6 more.

1 *Sub 75* 5. An optical element comprising
2 *As* a base member; and
3 a resin layer formed on the surface of the base member and
4 comprising a cured product of a photosensitive resin composition,
5 wherein said resin layer has a gel percentage of 95% or more.

1 6. An optical element comprising
2 a base member; and
3 a resin layer formed on the surface of the base member and
4 comprising a cured product of a photosensitive resin composition,
5 wherein said resin layer has a glass transition temperature of 95°C or
6 above.

1 *Sub 76* 7. An optical element comprising
2 *As* a base member; and
3 a resin layer formed on the surface of the base member and
4 comprising a cured product of a photosensitive resin composition,

5 wherein said photosensitive resin composition has a rate of shrinkage
6 on curing of 7% or less.

1 8. The optical element according to any one of claims 1 to 7,
2 wherein said resin composition comprises:

- 3 (A) a polyfunctional (meth)acrylate;
4 (B) a polyfunctional urethane-modified (meth)acrylate; and
5 (C) a photopolymerization initiator.

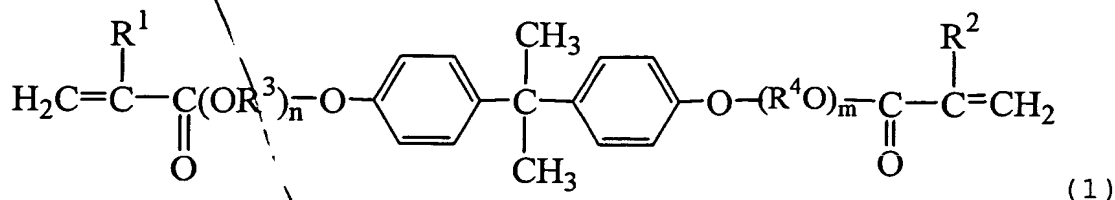
1 9. The optical element according to any one of claims 1 to 8,
2 wherein said resin composition has a refractive index before
3 polymerization curing of, 1.52 or more.

1 10. The optical element according to claim 8, wherein said
2 polyfunctional (meth)acrylate has a refractive index before
3 polymerization curing, of 1.53 or more.

1 11. The optical element according to any one of claims 8 to 10,
2 wherein said polyfunctional (meth)acrylate has two or more benzene
3 ring structures in one molecule.

1 12. The optical element according to any one of claims 8 to 11,
2 wherein said resin composition comprising, as at least a part of said
3 polyfunctional (meth)acrylate, a di(meth)acrylate represented by the

4 following Formula (1):

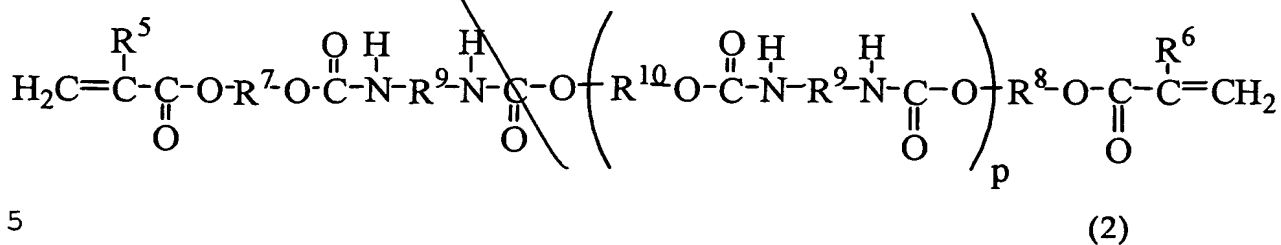


5
6 wherein R^1 and R^2 are each a hydrogen atom or a methyl group, R^3
7 and R^4 are each a hydrocarbon group having 2 to 4 carbon atoms, and
8 m and n are each an integer of 1 or more.

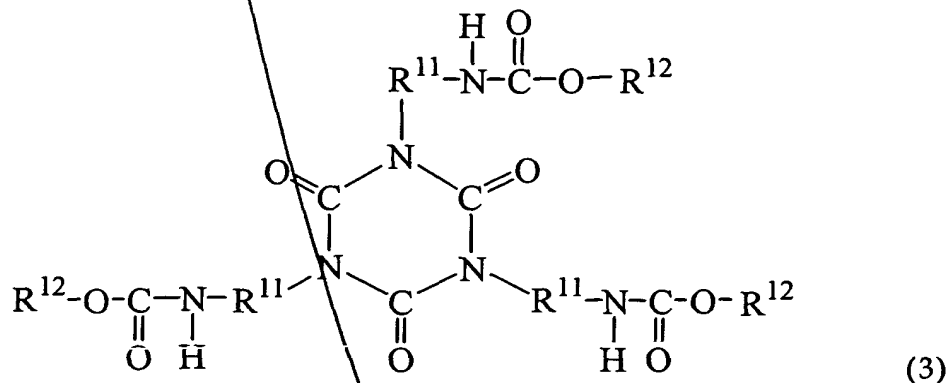
1 13. The optical element according to any one of claims 8 to 12,
2 wherein said polyfunctional (meth)acrylate has a molecular weight
3 before polymerization curing, of 1,000 or less.

1 14. The optical element according to claim 8, wherein said
2 polyfunctional urethane-modified (meth)acrylate has a refractive
3 index before polymerization curing, of 1.48 or more.

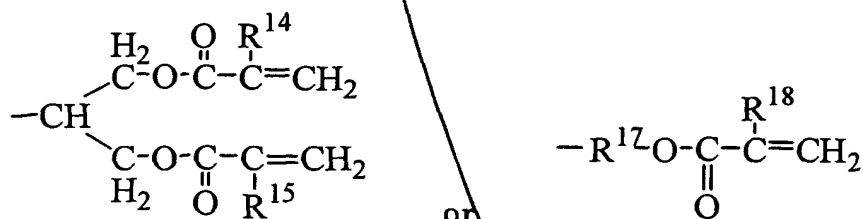
1 15. The optical element according to any one of claims 8 to 14,
2 wherein said polyfunctional urethane-modified (meth)acrylate
3 contains at least one of compounds represented by any of the
4 following Formulas (2) to (4):



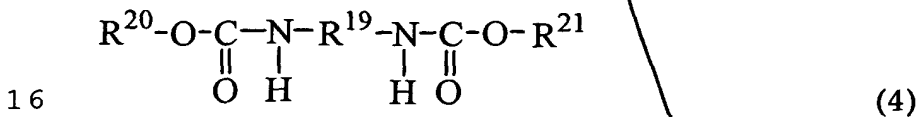
6 wherein R⁵ and R⁶ are each a hydrogen atom or a methyl group, R⁷
 7 and R⁸ are each a hydrocarbon group having 1 to 10 carbon atoms, R⁹
 8 is an isocyanate residual group, R¹⁰ is a polyol residual group or a
 9 polyester residual group, and p is 0 or an integer of 10 or less.



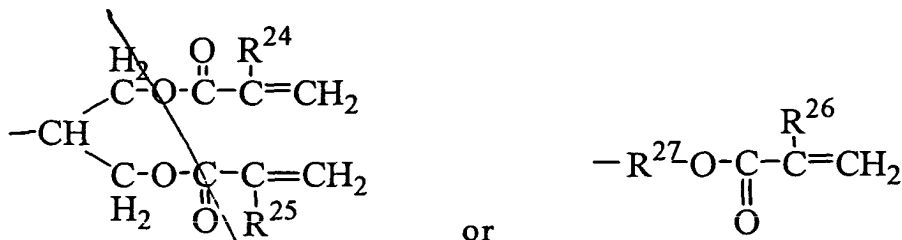
10 wherein R¹¹ is a hydrocarbon group having 1 to 10 carbon atoms, and
 11
 12 R¹² is



13
 14 wherein R¹⁴, R¹⁵ and R¹⁸ are each a hydrogen atom or a methyl group,
 15 and R¹⁷ is a hydrocarbon group having 1 to 10 carbon atoms;



16
 17 wherein R¹⁹ is a hydrocarbon group having 1 to 10 carbon atoms, and
 18 R²⁰ and R²¹ are each



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wherein R^{24} , R^{25} and R^{26} are each a hydrogen atom or a methyl group,
and R^{27} is a hydrocarbon group having 1 to 10 carbon atoms.

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16. An optical article having the optical element according to
any one of claims 1 to 15.

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17. The optical article according to claim 16, wherein;
said optical element is a lens; and
said optical article is a still camera.

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18. The optical article according to claim 16, wherein;
said optical element is a lens; and
said optical article is a video camera.

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19. The optical article according to claim 16, wherein;
said optical element is a lens; and
said optical article is an interchangeable lens.

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20. A process for producing a resin-cemented optical element,
the process comprising:

3 a first exposure step of irradiating a photosensitive resin
 4 composition held between the surface of a base member and a mold
 5 tool, to cure the composition to form a resin layer;
 6 a mold release step of mold-releasing the resin layer; and
 7 a heating step of heating the resin layer,
 8 in this order.

1 21. A process for producing a resin-cemented optical element,
 2 the process comprising:
 3 a first exposure step of irradiating a photosensitive resin
 4 composition held between the surface of a base member and a mold
 5 tool, with heating to cure the composition to form a resin layer; and
 6 a mold mold release step of mold-releasing the resin layer,
 7 in this order.

1 ~~22. The production process according to claim 21, wherein the~~
 2 ~~heating in said exposure step is carried out at a temperature of from~~
 3 ~~40°C to 130°C.~~

1 ~~23. A process for producing a resin-cemented optical element,~~
 2 ~~the process comprising:~~
 3 ~~a first exposure step of irradiating a photosensitive resin~~
 4 ~~composition held between the surface of a base member and a mold~~
 5 ~~tool, by light with a wavelength of 300 nm or more to cure the~~

6 composition to form a resin layer; and
7 a mold release step of mold-releasing the resin layer,
8 in this order.

1 24. A process for producing a resin-cemented optical element,
2 the process comprising:

3 a first exposure step of irradiating a photosensitive resin
4 composition held between the surface of a base member and a mold
5 tool, to cure the composition to form a resin layer;

6 a mold release step of mold-releasing the resin layer; and

7 a second exposure step of irradiating the resin layer by light
8 with a wavelength of 300 nm or more,
9 in this order.

1 25. The production process according to any one of claims 20,
2 21 and 23, which further comprises, after said mold release step, a
3 second exposure step of irradiating said resin layer by light with a
4 wavelength of 300 nm or more.

1 26. The production process according to any one of claims 23
2 to 25, wherein at least one irradiation by light with a wavelength of
3 300 nm or more is performed shutting out light with a wavelength of
4 less than 300 nm among light emitted from a light source.

1 27. The production process according to claim 21 or 23, which
2 further comprises, after said mold release step, a heating step of
3 heating said resin layer.

1 28. The production process according to claim 21 or 23, which
2 further comprises, after said second exposure step, a heating step of
3 heating said resin layer.

1 29. The production process according to any one of claims 20,
2 27 and 28, wherein the heating in said heating step is carried out at a
3 temperature of from 40°C to 130°C.

1 30. The production process according to any one of claims 20,
2 21, 23 and 24, wherein said resin composition comprises:

- 3 (A) a polyfunctional (meth)acrylate;
4 (B) a polyfunctional urethane-modified (meth)acrylate; and
5 (C) a photopolymerization initiator.

A13
noted

A10
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